Amendments to the Specification:

Please replace the paragraph bridging pages 4 and 5 of the original application (paragraph [0029] of the substitute specifcation) with the following amended paragraph:

[0029] A residual, biaxial, compressive stress arises within layers of thickness t_1, <u>known as compressive layers,</u> either surface or internal, when they are compressed relative to a second set of alternating layers of thickness, t_2. This compression can arise due to a compressive strain mismatch, ε, caused by either a mismatch in the thermal expansion coefficients of the laminae, or by a volume change of either of the laminae through a crystallographic phase transformation or formation of a chemical reaction product. For the specific case of a laminated plate composed of compressive layers (t_1), alternated between tensile layers (t_2), the biaxial stresses in both layers are given by [9]

$$\sigma_1 = \varepsilon E_1'\left(1+\frac{t_1E_1'}{t_2E_2'}\right)^{-1} \quad \text{and} \quad \sigma_2 = -\sigma_1\frac{t_1}{t_2} \qquad (1)$$

where $E_i'=E_i/(1-\nu_i)$, E is Young's modulus and ν is Poisson's ratio. Inspection of the two relations shows that thin compressive layers are desired because when $t_1/t_2 \to 0$ the compressive stress is maximized while the tensile stress diminishes to zero in the thicker layers.

Please add the following <u>new</u> heading and two paragraphs before the paragraph bridging pages 9 and 10 of the original application (after paragraph [0046] of the substitute specification):

General Comments

[0046.1] All other factors being equal, the smaller the separation distance between compressive regions, the higher the threshold strength. The threshold strength is optimized when the distance separating the regions of the material(s) that do(es) not contain compressive stresses is between 0.2 and 0.01 times the

dimension of the material(s) that do(es) not contain the compressive stresses, as measured from the interface between the materials. All else being equal, the larger the compressive stress, the larger the threshold stress. Compressive stresses in the range of 500 MPa to 5000 MPa are desired.

[0046.2] A composite can be formed in which the compressive stresses arise during cooling from a processing temperature to room temperature, caused by the differential strain induced by the differential thermal contraction coefficients of the different materials used to form the composite; and in which the materials are chosen from a list that includes at least two materials that do not react together to form a third material, but have differential thermal contraction coefficients such that compressive stresses would arise in one of the materials during cooling from a processing temperature, this list including, but not limited to, alumina (Al_2O_3), zirconia (ZrO_2), mullite (3 Al_2O_3 : 2 SiO_2), silicon nitride (Si_3N_3), silicon carbide (SiC), and titania (TiO_2). Examples of two materials chosen from this list would be alumina and zirconia, where the compressive stresses would arise in the alumina due to its lower thermal contraction coefficient; another example would be silicon nitride and silicon carbide, where the compressive stresses would arise in the silicon nitride due to its lower thermal contraction coefficient. A third example would be alumina and mullite, where the compressive stresses would arise in the mullite during cooling due to its lower thermal contraction coefficient.

Please delete the heading and four paragraphs that follow it beginning on page 10, line 3 of the original application which starts with "Supplemental Descriptive Material" (paragraph [0048] to [0051] of the substitute specification